APRIL/MAY 2024

23UFEL14 — FUNDAMENTALS OF ELECTRONICS

Time : Three hours Maximum : 75 marks

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SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define electric field.
2. What is electric field intensity?
3. Mention the types of resistors.
4. What is meant by colour coding?
5. Define Faraday's law.
6. What is the function of multimeter?
7. Mention the principle of capacitor.
8. List the applications of capacitors.
9. What is an insulator?
10. What is a transistor?

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Elucidate the electric intensity and electric potential.

Or

(b) Illustrate Coulomb's law.

12. (a) Discuss in detail working of variable resistors.

Or

(b) Explain the testing method of resistance using multimeter.

13. (a) Discuss in detail variable inductance.

Or

(b) Derive the energy stored in an inductor.

14. (a) Discuss in detail dielectric constant and strength.

Or

(b) Explain the capacitors in series and parallel.

15. (a) Discuss in detail energy band diagram.

Or

(b) Outline the method of doping of impurities.

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SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Evaluate the potential due to a uniform charged conducting sphere at a point on the conductor.

17. Elaborate the construction and characteristics of resistors.

18. Interpret self and mutual inductance.

19. Illustrate functions of Teflon and Ceramic capacitor.

20. Explain in detail P-type and N-type semiconductor.

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